

Borehole

30-03-01**Log Event A****Borehole Information**

Farm : <u>C</u>	Tank : <u>C-103</u>	Site Number : <u>299-E27-74</u>
N-Coord : <u>42,901</u>	W-Coord : <u>48,168</u>	TOC Elevation : <u>645.00</u>
Water Level, ft : <u>123.90</u>	Date Drilled : <u>6/30/1974</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness, in. : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>125</u>	

Cement Bottom, ft. : 127 Cement Top, ft. : 125

Borehole Notes:

This borehole was drilled in June 1974 to a depth of 100 ft. It was deepened in July 1983 to 127 ft and completed to 125 ft with 6-in. casing. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. The borehole was plugged with grout from 125 to 127 ft. No information concerning perforations was available; therefore, it is assumed that the borehole was not perforated. The top of the casing, which is the zero reference for the SGLS, is even with the ground surface.

Equipment Information

Logging System : <u>1</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>10/1996</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>04/17/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>17.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>04/18/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>124.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>40.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>04/21/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>41.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>16.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

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Log Run Number :	<u>4</u>	Log Run Date :	<u>04/21/1997</u>	Logging Engineer:	<u>Alan Pearson</u>
Start Depth, ft.:	<u>70.0</u>	Counting Time, sec.:	<u>100</u>	L/R : <u>L</u>	Shield : <u>N</u>
Finish Depth, ft. :	<u>50.0</u>	MSA Interval, ft. :	<u>0.5</u>	Log Speed, ft/min.:	<u>n/a</u>

Analysis Information

Analyst : D.L. ParkerData Processing Reference : P-GJPO-1787Analysis Date : 05/06/1997**Analysis Notes :**

This borehole was logged by the SGLS in four log runs. The pre- and post-survey field verification spectra met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The interval of 50 to 70 ft was relogged as an additional quality check. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation. No fine gain adjustments were necessary during these log runs.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137 and Co-60 were detected in this borehole. Cs-137 contamination was measured continuously from the ground surface to 82 ft, intermittently from 85 to 88 ft, continuously from 100 to 102 ft, and intermittently from 122 ft to the bottom of the logged interval. Co-60 contamination was detected continuously from 95 to 112.5 ft, intermittently from 113.5 to 120.5 ft, and continuously from 121.5 ft to the bottom of the borehole.

The KUT concentrations gradually increase from 42 to 51 ft and very gradually increase again from 72 to 89 ft. The concentrations generally remain elevated to the bottom of the logged interval (124.5 ft).

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank C-103.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations. Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made and natural radionuclides, the total gamma derived from the spectral data, and the Tank Farms gross gamma log. The gross gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma logs to coincide with the SGLS data.

A re-run plot is provided that presents data from the re-run log along with data from the original run to show the



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repeatability of the results.

A comparison plot is also provided showing the Cs-137 and Co-60 concentrations determined from the SGLS and those determined from the Radionuclide Logging System (RLS) in 1994.

A plot of representative historical gross gamma-ray logs from 1975 to 1992 is also included. The headings of the plots identify the date on which the data in the plots were gathered.